Example on simulating pulse width modulation(PWM)

# Prerequisite

1. The test below is verified on MangOH Red WP77 module FW R10(RC3).
2. Toolchain to compile the example driver is from R9.
3. The test below will use GPIO23 to simulate pulse width modulation (PWM). In case you need to use other GPIO, you need to first track your GPIO to MDM\_GPIO number. For example, typing “echo 23 > /sys/class/gpio/export” in console and then see the MDM\_GPIO in dmesg kernel log which is GPIO 10.

[ 172.509405] gpio\_sync\_ri: RI owner is Modem

[ 172.509432] gpio\_map\_name\_to\_num: find GPIO 10

[ 172.509442] export\_store: Export GPIO: 10

After that you need to modify the helloworld.c (in next section) and change the gpioLED pin to be 10.

1. Please make sure no legato application or linux application is using the test GPIO.

# Compile kernel driver

1. Extract the following PWM driver in Ubuntu PC.



1. Make sure you have downloaded the WP77 R9 software package by Developer Studio.
2. Open Makefile and change the CROSS\_COMPILE and KERNEL\_DIR path according to your build environment.
3. Type “make” to build the driver.

# Install and run the PWM driver

1. Download the helloworld.ko to module by USB ECM port.
2. On module console, type “insmod helloworld.ko” to install the kernel driver
3. Now measure the voltage of GPIO23 (pin 13 of CN307 in MangoH Red board), it should be changing the voltage level every 1.5 seconds.
4. To change the frequency of the PWM to 2000Hz, you can type the following command:

echo 500 > /sys/module/helloworld/parameters/blinkPeriod

1. To stop the PWM driver, type the following:

echo 0 > /sys/module/helloworld/parameters/blinkPeriod